

We claim:

1. A liquid crystal display device comprising: two substrates; a liquid crystal layer into which liquid crystal is inserted between opposing surfaces of the two substrates; and a structure provided so as to partition the liquid crystal layer and forming at least one enclosed domain in each display pixel, wherein the alignment of the liquid crystal molecules while a voltage is being applied is symmetric with respect to a plane parallel to the substrates and almost passing through the center in the direction of the thickness of the liquid crystal layer.

2. A liquid crystal display device, as set forth in claim 1, wherein the liquid crystal molecules have negative dielectric constant anisotropy and are almost vertically aligned with respect to the substrate surface while no voltage is applied.

3. A liquid crystal display device, as set forth in claim 1, wherein the tilting orientation of the liquid crystal molecules has two or more directions in each domain when projected on the substrate.

4. A liquid crystal display device, as set forth in claim 1, wherein the two substrates comprise electrodes on the opposing surfaces thereof, and wherein the structure is provided on the electrode and is made of dielectric material.

5. A liquid crystal display device, as set forth in claim 1, wherein the structure has a grid-like shape.

6. A liquid crystal display device, as set forth in claim 1, further comprising: first and second polarizing elements provided on the sides of the two substrates, respectively, the sides being not opposed to each other but facing in the opposite directions, and whose axes of absorption are orthogonal to each other; and at least one phase difference film provided at least either between the first polarizing element and the substrate to which the first polarizing element faces or

between the second polarizing element and the other substrate, to which the second polarizing element faces.

5 7. A liquid crystal display device comprising: a first liquid crystal layer in which the liquid crystal molecules have negative dielectric constant anisotropy and are almost vertically aligned with respect to a display surface while no voltage is being applied and aligned in a first orientation while a voltage is being applied when the liquid crystal molecules are projected on the display surface; a second liquid crystal layer in which the liquid crystal molecules have negative dielectric constant anisotropy and are almost vertically aligned with respect to the display surface while no voltage is being applied and aligned in an orientation in the opposite direction to that of the first orientation while a voltage is being applied when the liquid crystal molecules are projected on the display surface; and a first and second polarizing elements provided on the sides of the first and second liquid crystal layers, respectively, the sides being not opposed to each other but facing in opposite directions.

25 8. A liquid crystal display device, as set forth in claim 7, wherein the first and second liquid crystal layers are each liquid crystal panels.

30 9. A liquid crystal display device, as set forth in claim 8, wherein the liquid crystal molecules are aligned in multiple orientations including the first and second orientations while a voltage is being applied when projected on the display surface in the first and second liquid crystal layers, and wherein the first and second liquid crystal layers are arranged in such a way that a domain in which the liquid crystal molecules are aligned in the first orientation in the first liquid crystal layer overlaps with a domain in which the liquid crystal molecules are aligned in the second orientation in the second liquid crystal layer, and a domain in which the liquid crystal molecules are aligned in the second

orientation in the first liquid crystal layer overlaps with a domain in which the liquid crystal molecules are aligned in the first orientation in the second liquid crystal layer.

5 10. A liquid crystal display device, as set forth in claim 9, wherein the first and second liquid crystal panels have an alignment control means provided on the electrode, made of dielectric material and for
10 controlling the alignment of the liquid crystal molecules while a voltage is being applied, and wherein the alignment control means of the first liquid crystal panel and the alignment control means of the second liquid crystal panel are symmetric with respect to a middle plane between the first and second liquid crystal panels.

15 11. A liquid crystal display device comprising: two substrates having an electrode on the opposing surfaces, respectively; a liquid crystal layer in which liquid crystal is enclosed between the two substrates; and
20 alignment control means provided on the electrodes of the first and second substrates, made of dielectric material and for controlling the alignment of the liquid crystal molecules while a voltage is being applied, wherein the liquid crystal molecules have negative dielectric
25 constant anisotropy and are almost vertically aligned with respect to the substrate surface while no voltage is being applied, wherein the alignment control means controls so that first and second domains, in which the tilting orientations of the liquid crystal molecules are
30 different from each other by about 180 degrees when projected on the substrate while a voltage is being applied, are produced within each pixel, and wherein the pitch with which the first and second domains are arranged alternately is equal to or less than ten times the thickness of the liquid crystal layer.

35 12. A liquid crystal display device, as set forth in claim 11, wherein the width of the boundary domain of the first and second domains is equal to or less than the

thickness of the liquid crystal layer.

13. A liquid crystal display device, as set forth in claim 11, wherein the alignment control means controls so that a domain, in which the tilting orientation of the liquid crystal molecules is different from those in the first and second domains when projected on the substrate surface while a voltage is being applied, is produced within each pixel.

14. A liquid crystal display device, as set forth in claim 11, further comprising: a first and second polarizing elements provided on the sides of the two substrates, respectively, the sides being not opposed to each other but facing in opposite directions, and whose axes of absorption are orthogonal to each other; and at least one phase difference film provided at least either between the first polarizing element and the substrate on which the first polarizing element is provided or between the second polarizing element and the other substrate on which the second polarizing element is provided.

15. A liquid crystal display device comprising: two substrates having an electrode on the opposing surfaces, respectively; a liquid crystal layer in which liquid crystal is enclosed between the two substrates; and alignment control means provided on the electrodes of the first and second substrates, made of dielectric material and for controlling the alignment of the liquid crystal molecules while a voltage is being applied, wherein the liquid crystal molecules have negative dielectric constant anisotropy and are almost vertically aligned with respect to the substrate surface while no voltage is being applied, wherein the alignment control means controls so that a first and second domains, in which the tilting orientations of the liquid crystal molecules are different from each other by about 180 degrees when projected on the substrate while a voltage is being applied, are produced within each pixel, and that the first and second domains are shifted in the direction

perpendicular to the substrate.

16. A liquid crystal display device, as set forth in claim 15, wherein the alignment control means controls so that the neighboring first and second domains are
5 shifted in the direction perpendicular to the substrate.

17. A liquid crystal display device, as set forth in claim 16, wherein the alignment control means comprises a first step-structure provided in the first domain on the electrode of the second substrate and a
10 second step-structure provided in the second domain on the electrode of the first substrate.

18. A liquid crystal display device, as set forth in claim 15, wherein the alignment control means controls so that the pair of the neighboring first and second
15 domains are divided so as to form a middle domain and that the neighboring middle domains are shifted in the direction perpendicular to the substrate.

19. A liquid crystal display device, as set forth in claim 18, wherein the alignment control means divides
20 the neighboring middle domains into a first middle domain and a second middle domain alternately and has a first step-structure provided in the first middle domain on the electrode of the second substrate and a second step-structure provided in the second middle domain on the
25 electrode of the first substrate.

20. A liquid crystal display device, as set forth in claims 17 or 19, wherein the first step-structure and the second step-structure control the thickness of the liquid crystal layer.